



Project Report: Establishing a CIP Project at Continental

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Continental Bicycle Tyre Production Project Report on the Effective Establishment of a CIP Project

This report describes how Continental's two-wheel business is introducing the Continuous Improvement Process (CIP) in its bicycle tyre production at Korbach in western Germany, and how the organisation is learning to change itself during this introduction process.

As part of the project the triggers for change arising from implementation of the CIP in bicycle tyre production were taken up and applied productively through successful dovetailing of personnel development and change management.

Training sessions to establish employees' competence in CIP were coupled with instruments of change management in order to develop the Continuous Improvement Process in production into a fully integrated routine for the production workflows.

flow consulting gmbh provided support for this improvement process at individual steps during the project.

A project to improve productivity

Continental operates a production plant at Korbach in western Germany. Here it produces not only tyres for motorcycles and passenger cars, but also high-quality mountain bike and racing tyres which are exported all over the world. Racing cyclists appreciate the quality of the tyres, which has been demonstrated over recent years by independent tests in which the company always comes first.

The trend towards ever-lighter tyres poses huge challenges in the production process. Tyres have to be produced from fine, high-quality materials – with very narrow tolerances. Many of the older machines used in production, which were originally designed for tyres with different quality requirements, are reaching the limits of the quality they can produce. The amount of waste in production had taken on problematic proportions.

This problem was affecting all the stations in the production process. Production faults at one station that were not recognised (or not communicated) become more costly, the later they “make their mark” in the production process.

The waste generated during production is an increasingly serious cost factor owing to the expensive basic materials. In 2008 this gave rise to a project in production to improve productivity and reduce costs.

That year it was impossible to invest in the machinery, and so intelligent approaches were needed within the process workflows to achieve the objectives.



CIP was more suitable than group work

Before the CIP project was launched, there was the idea of introducing group work to enhance the accountability of the members of staff.

Yet a detailed diagnosis of the initial situation (stock-take of processes and interviews with key persons involved) revealed that the individual workstations and working areas within production were linked together only weakly. For this reason, the introduction of partially autonomous production groups would have come up against major structural and cultural hurdles. It would have been difficult to combine group work with the existing work processes; it also appeared not to make sense to change the existing production lines.

Instead, the Continuous Improvement Process provided an approach that could be realised within the existing working structures. It was applied to give the employees regular tastes of independence “little and often” within the production culture and structure already in place.

The iterative principle: a clear framework and continuous adjustment

Right from the outset, the introduction of CIP at Continental pursued two objectives:

1. At the level of personnel development, it was to enable the employees to apply the tools of the Continuous Improvement Process to achieve small improvements in their area of responsibility.
2. At the level of organisational development, CIP was to improve co-operation between the production units, and develop structures for efficient co-operation; a new role for the shift leader was to be defined and put into practice.

These objectives were discussed by the production manager and the line managers. Furthermore, indicators for production were elaborated with which the process of change could be steered reliably.

Change projects in complex production systems with well-worn leadership routines rarely take the course predicted for them, and generate some surprises – not only for external observers. We therefore decided not to draw up a detailed schedule covering all the steps involved. Initial implementation steps were defined to provide clarity for the project. The succeeding measures emerged during close observation of the developments and reactions, and were discussed in detail with the persons concerned on an ongoing basis. This made it possible to adapt the process even to unpredictable developments – which is in line with the concept of an iterative approach.

We are pursuing the iterative principle throughout the project: at predetermined times and, additionally, at the points where unforeseen events occur, we discuss current developments with supervisors and/or other members of staff. The observations and the networking of relevant viewpoints helps those involved to



keep up with the changes and developments and to plan the right measures as the next steps in the overall course of the project.

Taking the iterative view, the objectives originally determined remain verifiable and the right measures can be adapted to the development in the change process.

Iterative Consultation*

Juggling with dilemmas

- Take a structured approach, but do not become fixated.
- Move forward according to a plan, but not (over)planned.
- Remain constant without becoming dogmatic.
- Keep your flexibility without becoming arbitrary.

Five principles of iterative consultation

1. Pay attention

Pay attention to several features of an event.
Relate your findings to one another.

2. Find new combinations

“Surf” in unplanned situations that are not fully organised, in which behaviour cannot be predicted.

3. Take a flexible view of rules

Regard rules as items on an agenda, occurring with ever-new power, in surprising sequences and with a different content.

Interpret rules “according to your best knowledge and belief.” Apply rules appropriately to the situation – and in doing so, change rules step by step.

4. Be prepared

Practise finding/inventing a “Plan B” at the right moment while on the job.

5. Be experimental

Take action promptly, improvise, learn to react, and take small steps.

**As developed by flow consulting gmbh 2011*

The changing role of the shift leader

The CIP approach provided that employees should work independently on making improvements, in small improvement teams comprising members from more than one shift and using CIP tools, such as error analysis and small-scale discussions. In the Continuous Improvement Process the employees move within the existing work structures, so the role of the shift leaders as the line managers is not called into question. They do not experience the approaching changes as threatening. On the one hand this promotes acceptance of the improvement project among the line managers of the improvement teams – the shift leaders. On the other, however, the shift leaders can easily step aside from the change process because they believe that the project is not relevant to them.

Yet the shift leaders do in fact gain new options for action and new tasks, namely to actively drive the CIP project forward.

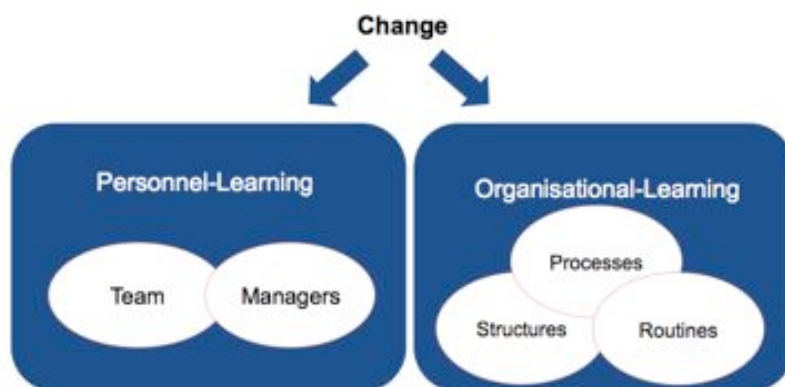


The shift leaders should, for example, give the improvement teams topics to work on and delegate responsibility to the staff members. The shift leaders should promote and develop the competencies of the staff.

Moreover, implementation of the improvement measures proposed by the teams will automatically influence the work of the shift leaders. Tasks will change, structures will be questioned, and processes that proved their value in the past, but which are no longer productive, will be reassessed. This means that new behaviours and abilities have to be developed – not only by the employees in the CIP teams, but also by the shift leaders. Change processes must be associated with processes of personnel development.

This project therefore paid attention to the employees and shift leaders being able to acquire the new skills on the job.

For the whole organisation to benefit, the effects of the newly learned behaviour must be kept in mind.



Change management as the combination of personnel development and organisational development

To achieve this, help is available using instruments of change management. The CIP project becomes a process of change management and personnel development.

Leadership seminars have limited effects

The new role of the shift leaders contains the following specific items:

1. They must organise gaps in the work roster for the CIP team members for them to plan and carry out their improvements themselves.
2. They should support and advise the staff members in the implementation of the improvement projects.



3. They must provide the framework for the CIP teams, i.e. decide which topics the CIP teams can work on and where the limits lie regarding specific competencies and time pressure.
4. They should initiate improvement projects independently, which are primarily concerned with leadership topics and interfaces with other factory departments (we have called these projects “CIP leadership”).

The first personnel development measure was offering the shift leaders a leadership seminar as a “classical” training module. They were able to reflect on their new role in the CIP process and probe options for better co-operation amongst themselves. In addition they learned how to hold effective discussions.

The impact of this leadership training failed to meet expectations by quite a wide margin. Cognitively, the shift leaders did indeed recognise the importance of this project. However, familiar routines in production, demarcating the shifts, and preserving old leadership patterns proved to be more powerful than the intervention in the form of seminars. The limited influence of classical training measures became apparent.

Structural measures such as introducing a new shift system and reinforcing the on-the-job learning projects, e.g. the introduction of the CIP “leadership” project group, were important elements for achieving progress in learning that included the shift leaders, so that they could make a better job of their new roles.

Setting up the CIP teams in two waves results in many improvement projects

On the level of the staff members, a total of seven CIP teams were set up. They were trained for their tasks in two waves. In the first wave, three production units started with one CIP team each. The CIP teams were comprised of two to four people. The training programme for the staff members was carried out in four steps, each lasting four hours:

1. The first time a CIP team meets, basic techniques for the Continuous Improvement Process are presented. At the same time the members of the team select an initial improvement topic to work on. At the end of this meeting the shift leader responsible and the production manager join the team to consult with all the members on the proposed improvement. The participants come to a binding agreement on mutual support and implementation. The first meeting is moderated by flow consulting.
2. At the second meeting the current status of the improvement project is discussed: a balance is taken of the difficulties and successes, and the following steps are agreed. This meeting is led by the team spokesperson, who is given feedback by flow consulting on his or her performance. At the end of the meeting once again the shift leader and the production manager join the other participants, who inform them about the results; any difficulties arising are mentioned and a solution is found jointly.
3. The third meeting is held by the CIP team acting independently. At the end, the shift leader and the production manager receive reports about the meeting.



There is no external moderator present at this meeting, so the team has to learn to “stand on its own two feet.”

4. At the fourth meeting the team works independently on the improvement project (stock-take, current results, difficulties and the next steps), discusses with the external moderator the questions arising, and receives feedback on how they conducted the CIP meeting. Finally, unanswered questions are discussed with the shift leader and the production manager. At the end of the meeting, the participants are awarded a symbolic “CIP driving licence” and the production manager gives them the task of holding regular CIP meetings.

At the end of this first wave flow consulting, the shift leaders, the production manager and the team spokespersons assess the work done so far, and in the light of their experience they determine the framework conditions for the second wave with the next four teams. In doing so they define optimisations for implementation based on the learning experiences.

After a good six months, all the production units had functional CIP teams. After one year of working on CIP, the most varied improvement projects have been realised: from clearing out the cupboard containing lettering for vulcanisation (to avoid using the wrong one) to converting machinery (to avoid soiling due to leaking grease). The indicators that were determined during the project reveal marked savings.

How can a permanent new routine emerge from the successes?

The trained CIP teams from all the production units are essential for continuous improvements in production. However, they do not guarantee that work on improvements will continue in these units *permanently*.

Our experience from such project work in various sectors is that staff training provided with a lot of effort and enthusiasm does not automatically guarantee that the new know-how will be applied in the long run and become a fully integrated component of the organisation.

Based on our observations of many CIP projects in production plants, we have identified the following typical difficulties:

1. Frequently new, competing projects are launched in parallel to existing change processes and divert the managers' attention, often ending up as counterproductive.
2. The increasing pressure to be efficient blocks the employees' resources, the CIP teams gradually stop working, and the training is forgotten – and therefore not applied.
3. The managers are often pleased as soon as the wave of training is over. Ordinary daily business following the old rules proves to be more powerful than the improvement project, which is intended to follow new rules.



4. If no new rules and structures are firmly implemented which support the changes, these old structures will have more impact than the impulses from the changes on work routines. This prevents the lasting implementation of innovation and improvement.

To ensure that the change process is a success, it is crucial to intervene in the rules and structures of normal production routines. At Continental CIP “Reporting Days” were introduced as a steering instrument.

Reporting Days that do more than show the balance

The Reporting Days were based on the following concept:

1. In the morning in each case two CIP teams worked jointly with the respective shift leaders to prepare a presentation of a CIP project.
2. In the afternoon the presentations were shown to the other shift leaders, team spokespersons, quality assurance, the production manager and the division manager, and discussed by the whole group. Current topics and questions arising from the CIP work were likewise discussed, weaknesses were identified and solutions were sought. A report from the meetings of team spokespersons was included at regular intervals.

Below we present four typical results from the Reporting Days:

1. **Catalogue with maturity criteria:** based on the positive experience to date, criteria for functional CIP work were compiled and summarised in the instrument of “criteria for level of maturity.” These criteria are used to assess the CIP meetings, the support and activity of the superiors, and the results of the CIP projects using a “traffic light” system.
2. **Adaptation to new personnel structures:** the shift leader rotation that was introduced obscured the responsibilities for the CIP teams as originally determined. The consequence was that the teams no longer had clearly defined contact persons and became less committed. On the Reporting Day, this deficit was mentioned and new, unequivocal responsibilities were determined within the new structures.
3. **CIP on site:** to enable the staff members not directly involved in the CIP process to develop a better understanding of the improvement projects, there will be dates for presentations in production. Each team will present either current or completed projects to other employees, the production manager and the division manager in the production unit on site and discuss their effects.
4. **CIP leadership:** the shift leaders conduct their own CIP project so they can create the necessary structures and processes and ensure training for their staff members, in order to promote the work on CIP.

The Reporting Days have reinforced the CIP process and reminded the players again and again to adapt the (now ongoing) topic of CIP to the changing conditions and to continue developing it:

1. Successful projects became visible to everyone and could be transferred to other production units.



2. Following the early “high-gloss” presentations (due to insecurity created with vast input bearing no relation to the benefit) about their own CIP projects, the participants became increasingly successful at presenting questions and findings from the “everyday work” of the shift leaders and CIP teams using simple means, and discussing them frankly.
3. External influences affecting production (e.g. relocation of personnel), that had to be tackled in connection with the financial crisis, were discussed in relation to their influence on the CIP work and were dealt with.
4. The topic of CIP and a status survey were integrated into the regular discussions. This functioned as a kind of early warning system and required the shift leaders to keep track of their CIP teams.

Continuity in the Continuous Improvement Process

In this report we have given you some insights into the Continuous Improvement Process at Continental, which is now in its third year. The company’s bicycle tyre production in Korbach is enabled to defend its competitiveness at the highest level. The tyres continue to score top marks in quality tests published in the press, output has been markedly increased, and huge progress has been made in productivity. The CIP project in Korbach represents one element in the overall strategy of the bicycle tyre unit. From our point of view, the most important success is that the new processes are on the way to becoming permanent. The change process has gradually become anchored in the production routines. Further steps have to follow and will do so. Change and innovation have become a living part of bicycle tyre production at Continental in Korbach.

Matthias Diederichs, May 2011



Excerpt from the Internet site of Continental bicycle tyres dated 27 April 2011

http://www.conti-online.com/generator/www/de/de/continental/fahrrad/allgemein/werwirsind/deutschetechnik/deuschetechniktext_de.html

German Engineering Since 1871

More than 100 years experience in the development and production of bicycle tyres has made Continental a unique company within the industry.

Continental is the only German bicycle tyre manufacturer to produce its tyres in Germany. Knowing this serves as a mighty incentive to our engineers and everyone else involved in the manufacturing process to constantly strive for further innovations.

In our technology and development center in Korbach, we are constantly developing new revolutionary technologies such as the unbeatable Black Chili compound and the ultimate Vectran™ breaker anti-puncture technology, both used at the top end of race sport.

These technologies demand sophisticated processes to ensure our legendary end-product quality, and these innovations as well as the new Protection and RaceSport technology for MTB tyres, can only be manufactured in our factory in Germany – “Handmade in Germany”.

In order to offer the best tyre for any application, we rely equally on dialogue with our professional racers, hobby cyclists and everyday bike riders.

This results not only in high-end products for top sports applications such as the new Podium TT or the revolutionary downhill tyre “Der Kaiser”, but also tyres for everyday use like the new innovative combination EcoContact/EcoContactPlus as a companion to the latest e-bike trend.

As a global player, Continental also maintains high-tech production facilities outside of Germany, where Continental tyres are produced for you with an equal degree of care and dedication. One thing all Continental bicycle tyres have in common is that they are developed in the technology center in Korbach, Germany, where they also undergo strict inspection.

Our heart and soul is behind the phrase “Handmade in Germany”, with all of its products and technologies.

Have fun experiencing the Continental products!